

CLAIMS:

1. Display device, comprising an imaging layer (9) with a plurality of picture elements and a lens layer (10) comprising a plurality of lens elements (11) for projecting light from different picture elements in the imaging layer (9) to the left and right eyes of a user in order to provide an autostereoscopic effect, wherein each lens element (11) comprises at least one lens cell (12) which defines a closed space, having a front wall (17), facing the user, a back wall (18) facing the imaging layer (9) and side walls (19, 20), connecting the back and front walls (17, 18), the closed space being filled with first (13) and second (14) substantially immiscible fluids having different refractive indices, each cell (12) comprising means for varying the shape of the interface between the first (13) and second (14) fluids, wherein the side walls (19, 20) of each lens cell (12) comprise at least a first (21) and a second (22) individually controllable electrode, the display device comprises a tracking device (26, 27) for determining the position of a user's head, and controlling means (28) for controlling potentials of said first and second electrodes (21, 22) based on said position.
- 15 2. Display device according to claim 1, wherein each lens element (11) is elongated and covers a linear segment of the imaging layer from top to bottom.
3. Display device according to claim 2, wherein each lens element (11) comprises a single lens cell (12).
- 20 4. Display device according to claim 2, wherein each lens element (11) comprises a plurality of lens cells (12a, 12b, 12c).
5. Display device according to claim 4, wherein said lens cells (12a, 12b, 12c) are individually controllable.
- 25 6. Display device according to any of the preceding claims, comprising selecting means for switching the display device into a 2D-mode such that the controlling means affects the interface between the first and second fluids (13, 14) to be substantially flat.

7. Display device according to any of the preceding claims, wherein the first fluid (13) is an electrically conducting fluid, such as an aqueous salt solution, the second fluid (14) is an electrically non conducting fluid, such as an oil, and wherein the inner front and side walls (17, 19, 20) are covered with an hydrophobic layer (24).

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8. Display device according to any of the preceding claims, wherein the tracking device (26, 27) comprises a video camera (26).

10 9. Method for displaying an image with an autostereoscopic effect, comprising using a display device, comprising an imaging layer with a plurality of picture elements and a lens layer comprising a plurality of lens elements for projecting light from different picture elements in the imaging layer to the left and right eyes of a user, wherein each lens element comprises at least one lens cell which defines a closed space, having a front wall, facing the user, a back wall facing the imaging layer and side walls, connecting the back and front walls, the closed space being filled with first and second substantially immiscible fluids having different refractive indices, each cell comprising means for varying the shape of the interface between the first and second fluids, wherein the side walls of each cell comprise at least a first and a second individually controllable electrode,

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20 determining the position of a users head using a tracking device, and controlling potentials of said first and second electrodes based on said determined head position.